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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/660,042	09/11/2003	Armin Horn	TAIG-1013-US0	1815
26614	7590	07/14/2004	EXAMINER	
PEPE & HAZARD, LLP			COHEN, AMY R	
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HARTFORD, CT 06103			2859	

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/660,042

Applicant(s)

HORN, ARMIN

Examiner

Amy R Cohen

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/11/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

1. Claim 25 is objected to because of the following informalities:

Claim 25, line 3, the "an evaluation unit (36)" has already been previously claimed in claim 9 and therefore should be reflected in the claim language.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 7-12, 14-16, 19-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Sartorio et al. (U. S. Patent No. 5,099,666).

Sartorio et al. teaches a method for determining the length (Col 5, lines 13-27) of at least one of two legs (7, 8) of a workpiece (4), which have been bent toward each other by means of a bending die (2, 3) at a bending angle (β) whose vertex (6) is located at the point of intersection of the straight, angle forming projections (Fig. 1) of the legs (7, 8) of the bent part (4), with one end (D1-D4) of the leg (7, 8) to be measured limiting the latter on the far side opposite the bending angle vertex (6), comprising: (a) holding the object part (4) in the bending die (2, 3); (b) determining the position of the bending angle vertex (6) and the position of the end (D1-D4) of the leg (7, 8); and (c) from the respective position of the bending angle vertex (6) and of the end

(D1-D4) thus determined, calculating the length (D1-D4) of the leg as the distance between the said bending angle vertex (6) and the said end (D1-D4) (Col 5, lines 13-53).

Sartorio et al. teaches the method for determining the length of at least one of two legs of a workpiece wherein the workpiece (4) is retained in the bending die (2, 3) in a defined position (Fig. 1 and Col 3, line 45-63).

Sartorio et al. teaches the method for determining the length of at least one of two legs of a workpiece wherein the position of the bending angle vertex (6) is determined by initially determining the bending angle (Fig. 1, Col 2, lines 20-57 and Col 3, line 45-63).

Sartorio et al. teaches the method for determining the length of at least one of two legs of a workpiece wherein, during the step of determining the position of the bending angle vertex (6), the workpiece (4) is supported on a backing surface (13) and the position of the bending angle vertex (6) is determined on the basis of the position in which the workpiece (4) is supported on said backing surface (13) (Fig. 1 and Col 3, line 45-63).

Sartorio et al. teaches a method for bending workpieces wherein two angular legs (7, 8) of a workpiece are bent toward each other in a bending die (2, 3) at a bending angle (β) to produce a bent workpiece (4), the length (D1-D4) of at least one of the said legs (7, 8) is determined with a bending angle vertex (6) located at the point of intersection of the straight projections of the legs that form the angle (β) of the legs (7, 8) of the workpiece (4) and with the end of the leg (7, 8) delimiting the latter on the far side from the bending angle vertex (6) (Fig. 1, Col 2, lines 20-57).

Sartorio et al. teaches the method for bending workpieces wherein the actual value obtained as a result of the determination of the length (D1-D4) of a leg (7, 8) is compared to a leg length set point value and that the result of said actual value/set point value comparison is

used to define at least one parameter of significance for the length in a subsequent bending step (Fig. 1, Col 2, line 20-Col 3, line 26).

Sartorio et al. teaches an apparatus for determining the length of at least one out of two legs (7, 8) of a workpiece (4) which have been bent toward each other by means of a bending die (2, 3) at a bending angle (β) whose bending angle vertex (6) is located at the point of intersection of the straight projections (Fig. 1) of the legs (7, 8) forming the angle of the legs of the workpiece (4) while an end (D1-D4) of the leg (7, 8) concerned delimits the latter on the far side from the bending angle vertex (6), said apparatus including: (a) a system (30) for determining the position of the bending angle vertex (6); (b) a unit (32) for determining the position of the end; and (c) an evaluation unit (32), said system (30) and unit (32) permitting the determination of the position of the bending angle vertex (6) and the position of the end of a bent workpiece (4) held in the bending die in a defined position, and said evaluation unit (32) processing data on the position of the bending angle vertex and of the end to determine the length as the distance between the bending angle vertex and the end (Figs. 1 and 2 Col 3, lines 15-39 and Col 5, lines 13-43).

Sartorio et al. teaches the apparatus for determining the length of at least one of two legs (7, 8) of a workpiece wherein a retaining element is provided for the determination of the position of the bending angle vertex and the determination of the position of the end, with the workpiece being held in specifically defined fashion in the bending die (Fig. 1).

Sartorio et al. teaches the apparatus for determining the length of at least one of two legs of a workpiece wherein the system (30) for determining the position of the bending angle vertex includes a unit (18, 19) serving to measure the bending angle as well as a processor that connects to the unit (18, 19) measuring the bending angle and to the evaluation unit (32), said processor

(32) determining the position of the bending angle vertex on the basis of the bending angle thus measured (Col 4, lines 15-39).

Sartorio et al. teaches the apparatus for determining the length of at least one of two legs of a workpiece wherein the system (30) for determining the position of the bending angle vertex includes a processor (32) connected to the evaluation unit (32), and a backing surface (13) supporting the workpiece (4) for the determination of the position of the bending angle vertex, said processor (32) determining the position of the bending angle vertex on the basis of the position of the support for the workpiece on the backing surface (Col 4, lines 15-39 and Col 5, lines 13-43).

Sartorio et al. teaches the apparatus for determining the length of at least one of two legs of a workpiece wherein the unit (32) serving to determine the position of the end includes a detection and acquisition unit for capturing the position of the end, and a processor connected to the detection and acquisition unit and also to the evaluation unit, said processor determining the position of the end on the basis of the position of the end captured by the detection and acquisition unit (Col 4, lines 15-39 and Col 5, lines 13-43).

Sartorio et al. teaches the apparatus for determining the length of at least one of two legs of a workpiece wherein the detection and acquisition unit serving to capture the position of the end may include a tactile contact sensor assembly that can be brought into contact with the end (Col 6, line 53-Col 7, line 14).

Sartorio et al. teaches the apparatus for determining the length of at least one of two legs of a workpiece wherein the contact sensor assembly that is in contact with the end is capable of moving with the end during the bending process (Fig. 6 and Col 6, line 53-Col 7, line 14).

Sartorio et al. teaches the apparatus for determining the length of at least one of two legs of a workpiece mounted in a device for bending workpieces including a bending die (2, 3) by means, of which at least two legs (7, 8) of a workpiece can be bent toward each other to produce a bent workpiece (4) with a bending angle (β) whose bending angle vertex (6) is located at the point of intersection of the projections forming the angle of the legs of the bent workpiece, and an end of the respective leg delimiting the latter on the far side opposite the bending angle vertex, and additionally, a system (30, 32) for determining the length of a leg (Figs. 1 and 2).

Sartorio et al. teaches the apparatus for determining the length of at least one of two legs of a workpiece wherein the bending die (2, 3) itself serves as the retaining element for the defined placement of the workpiece (4) for the determination of the bending angle vertex and/or for the determination of the position of the end (Figs. 1 and 2).

Sartorio et al. teaches the apparatus for determining the length of at least one of two legs of a workpiece wherein a backing surface (13) supporting the workpiece for the determination of the position of the bending angle vertex is provided by the bending die (Figs. 1 and 2).

Sartorio et al. teaches the apparatus for determining the length of at least one of two legs of a workpiece wherein a contact sensor assembly in the detection and acquisition unit serving to capture the position of the end is constituted of a positioning stop (Col 1, lines 23-40) of the bending device against which the workpiece can be set for appropriate positioning relative to the bending die prior to being processed.

Sartorio et al. teaches the apparatus for determining the length of at least one of two legs of a workpiece wherein the positioning stop is preferably movable by the control system (Col 1, lines 23-40)

4. Claim 1, 5, 6, 9, 13, 14, 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Kouno et al. (U. S. Patent No. 5,329,597).

Kouno et al. teaches a method for determining the length of at least one of two legs of a workpiece, which have been bent toward each other by means of a bending die at a bending angle whose vertex is located at the point of intersection of the straight, angle forming projections of the legs of the bent part, with one end of the leg to be measured limiting the latter on the far side opposite the bending angle vertex, comprising: (a) holding the object part in the bending die; (b) determining the position of the bending angle vertex and the position of the end of the leg; and (c) from the respective position of the bending angle vertex and of the end thus determined, calculating the length of the leg as the distance between the said bending angle vertex and the said end (Figs. 21, 23, 25, 29, Col 1, line 54-Col 2, line 25 and Col 10, lines 33-51).

Kouno et al. teaches a method for determining the length of at least one of two legs of a workpiece wherein the position of the bending angle vertex is determined by measuring the bending angle by optical means (130).

Kouno et al. teaches a method for determining the length of at least one of two legs of a workpiece wherein the position of the end of the leg of the workpiece is determined by optical means (130).

Kouno et al. teaches an apparatus (101) for determining the length of at least one out of two legs of a workpiece (W) which have been bent toward each other by means of a bending die (106) at a bending angle whose bending angle vertex is located at the point of intersection of the straight projections of the legs forming the angle of the legs of the workpiece while an end of the leg concerned delimit the latter on the far side from the bending angle vertex (Figs. 14-18), said

apparatus including: (a) a system (130) for determining the position of the bending angle vertex; (b) a unit (110) for determining the position of the end; and (c) an evaluation unit (51), said system and unit permitting the determination of the position of the bending angle vertex and the position of the end of a bent workpiece held in the bending die in a defined position, and said evaluation unit processing data on the position of the bending angle vertex and of the end to determine the length as the distance between the bending angle vertex and the end (Col 1, line 54-Col 2, line 25 and Col 8, lines 13-58).

Kouno et al. teaches an apparatus for determining the length of at least one out of two legs of a workpiece wherein the unit measuring the bending angle is an optical measuring tool (130).

Kouno et al. teaches an apparatus for determining the length of at least one out of two legs of a workpiece wherein the unit serving to determine the position of the end includes a detection and acquisition unit (130) for capturing the position of the end, and a processor (51) connected to the detection and acquisition unit (130) and also to the evaluation unit (110), said processor (51) determining the position of the end on the basis of the position of the end captured by the detection and acquisition unit (130).

Kouno et al. teaches an apparatus for determining the length of at least one out of two legs of a workpiece wherein the detection and acquisition unit (130) serving to capture the position of the end is an optical image acquisition unit (130).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2859

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim rejected under 35 U.S.C. 103(a) as being unpatentable over Sartorio et al. in view of Kouno et al.

Sartorio et al. discloses the apparatus and method as described above in paragraph 3.

Sartorio et al. does not disclose an apparatus and method comprising an optical detection and acquisition unit; wherein, for determining the length of a leg, there is included an evaluation unit as a part of a system controller in which at least one set point value for the length is stored and by means of which an actual length value can be compared against a length set point value, and; on the basis of the result of the actual versus set point length comparison, at least one parameter controlling the length in at least one subsequent bending operation can be defined.

Kouno et al. discloses an apparatus (101) for determining the length of at least one out of two legs of a workpiece (W) which have been bent toward each other by means of a bending die (106) at a bending angle whose bending angle vertex is located at the point of intersection of the straight projections of the legs forming the angle of the legs of the workpiece while an end of the leg concerned delimit the latter on the far side from the bending angle vertex (Figs. 14-18), said apparatus including: (a) a system (130) for determining the position of the bending angle vertex; (b) a unit (110) for determining the position of the end; and (c) an evaluation unit (51), said system and unit permitting the determination of the position of the bending angle vertex and the position of the end of a bent workpiece held in the bending die in a defined position, and said evaluation unit processing data on the position of the bending angle vertex and of the end to determine the length as the distance between the bending angle vertex and the end (Col 1, line 54-Col 2, line 25 and Col 8, lines 13-58).

Kouno et al. discloses the apparatus (101) for determining the length of at least one out of two legs of a workpiece (W) comprising an optical detection and acquisition unit (130); wherein, for determining the length of a leg, there is included an evaluation unit as a part of a system controller in which at least one set point value for the length is stored and by means of which an actual length value can be compared against a length set point value, and; on the basis of the result of the actual versus set point length comparison, at least one parameter controlling the length in at least one subsequent bending operation can be defined (Col 1, line 54-Col 2, line 25, Col 4, lines 11-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Sartorio et al. to include an optical detection means and an comparison means, as taught by Kouno et al., so that the detection of the angles and lengths would be more accurate with the optical means and so that the values obtained could be compared to theoretical, or previously obtained values.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents disclose bending apparatuses or methods of determining bending angles Uemura et al. (U. S. Patent No. 6,035,242), Uemura et al. (u. S. Patent No. 5,980,085), Koyama (U. S. Patent No. 5,857,366), Nagasawa (U. S. Patent No. 5,799,530), Hongo (U. S. Patent No. 5,603,236), Ooenoki et al. (U. S. Patent No. 5,483,750), Gerritsen (U. S. Patent No. 5,375,340), and Albertazzi (U. S. Patent No. 3,943,632).

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy R Cohen whose telephone number is (571) 272-2238. The examiner can normally be reached on 8 am - 5 pm, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego F. Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ARC
July 12, 2004



Diego Gutierrez
Supervisory Examiner
Tech Center 2800